

Response to Comments on Draft National Pollutant Discharge Elimination System (NPDES) Permit No. MA0000469 – Seaman Paper Company – Otter River, MA.

Introduction:

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES permit for Seaman Paper Company (MA0000469). The responses to comments explain and support the EPA determinations that form the basis of the final permit. The Seaman Paper Company draft permit public comment period began August 13, 2008 and ended September 11, 2008. Comments were received on the draft permit from Seaman Paper Company (Seaman) and the Connecticut River Watershed Council (CRWC).

The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's knowledge of the facility has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make certain clarifications in response to comments. These improvements and changes are detailed in this document and reflected in the final permit. A summary of the changes made in the final permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

Changes in Final Permit:

1. Part I.A.1, the effluent limitation for aluminum in the table has been revised to 0.29 mg/L average monthly and 2.1 mg/L maximum daily.
2. In the table and in footnote 7 of Part I.A.1, the effluent limitation for C-NOEC has been revised to $\geq 30\%$.
3. The requirement to conduct WET testing for the fathead minnow in Part I.A.1, *Pimephales promelas*, has been removed from the final permit.
4. Part I.A.1 of the permit, footnote 10, has been revised as follows:
The permittee shall calculate the PRTI for each temperature measurement using the equation below. The PRTI calculation shall use the measured effluent temperature, concurrent measured effluent flow, concurrent upstream river temperature, and the concurrent upstream river flow at the facility. Concurrent upstream river temperature shall be measured as close in time as possible, but no greater than one (1) hour from the measured effluent temperature. Concurrent upstream river flow and effluent flow shall be taken on the same day as the measured effluent temperature.

$$\text{PRTI } (^{\circ}\text{F}) = \frac{[(\text{Flow}_{\text{Concurrent}} \text{ MGD}) * (\text{Temp}_{\text{Effluent}} ^{\circ}\text{F} - \text{Temp}_{\text{ConcurrentUpstream}} ^{\circ}\text{F})]}{(\text{Flow}_{\text{ConcurrentUpstream}} \text{ cfs}) (0.6464 \text{ MGD/cfs})}$$

5. The pH limit range in Part I.A.1 and Part I.A.3 has been revised to 6.5-8.3 SU.
6. The monitoring frequency in Part I.A.1 for pH has been revised from 1/week to 1/day.
7. Part I.A.1, footnote 3, has been revised as follows:
Sampling frequency of 1/day is defined as the sampling of one (1) discharge event during each 24-hour period, when discharge occurs. Sampling frequency of 1/week is defined as the sampling of one (1) discharge event in each calendar week, when discharge occurs. Sampling frequency of 2/week is defined as the sampling of two (2) discharge events in each calendar week, when discharge occurs. Sampling frequency of 2/month is defined as the sampling of two (2) discharge events in each calendar month, when discharge occurs. Sampling frequency of 1/quarter is defined as the sampling of one (1) discharge event in each calendar quarter, when discharge occurs. Quarterly samples shall be collected during the second weeks in January, April, July, and October. Sampling frequency of 2/year is defined as the sampling of two (2) discharge events in each calendar year, when discharge occurs. One biannual sample shall be collected during the time period from (June 1st – September 30th) and the other shall be collected during the time period from (October 1st – May 31st). The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).
8. A prohibition of use of intake water for cooling has been added in Part I.A.11.
9. The first page of the permit has been clarified to state, “This permit supersedes the permit issued on October 14, 2004, which expired on September 30, 2007.”
10. The first page of the permit has been clarified as follows: “General Conditions” has been changed to “Standard Conditions.”
11. The following narrative requirement has been added to the final permit at Part I.A.12: “The rise in temperature of the receiving water due to a discharge shall not exceed 5°F.”
12. In the Table in Part I.A.1, the requirement to report “Ammonia” has been changed to “Total Ammonia Nitrogen (as N),” to be consistent with footnote 9. In footnote 9, “Total Recoverable Aluminum” has been replaced with “Aluminum” and the footnote has been revised to specify that all metals shall be reported as total recoverable concentrations. Footnote 9 now states:
For each Whole Effluent Toxicity (WET) test the permittee shall report on the appropriate Discharge Monitoring Report (DMR), the concentrations of the Hardness, Total Ammonia Nitrogen as Nitrogen, Alkalinity, pH, Specific Conductance, Total Solids, Total Organic Carbon, Total Residual Chlorine, Dissolved Oxygen, Aluminum, Cadmium, Chromium, Copper,

Lead, Nickel, Zinc, Magnesium, and Calcium found in the 100 percent effluent sample. Metals shall be reported as total recoverable concentrations. The permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

13. Part I.A.1, footnote 4, and Part I.A.2, footnote 7, the phrase “combined proportionally to flow” has been added to the definition of composite samples.
14. The typographical error of “my” has been replaced with “by” in Part I.A.1, footnote 1.

SUMMARY OF COMMENTS:

1.0 DILUTION FACTOR

1.1 SEAMAN COMMENT:

Dilution Factor – On Page 10 of the Fact Sheet the calculation for the dilution factor is discussed. In this draft permit, the maximum day flow of 1.4 MGD is used which is a change from all our previous permits where average flow was used. In addition, a nearby plant, Erving Center Wastewater Treatment Plant, has recently received a draft NPDES permit where the average flow was used for the dilution factor determination. We feel that the use of maximum flow in the calculation may be an error. We have also reviewed numerous other permits and have found them all to use average flow in the calculation of dilution factor. This is of particular interest to us since it changes the permit limits for toxicity, which will be considerably more stringent because of this change in calculation. We request that the average flow of 1.1 MGD be used in calculating the dilution factor.

1.2 CRWC COMMENT:

The dilution factor is not correct. As noted on page 9 of the Fact Sheet, the facility has a Water Management Act permit to withdraw 1.19 MGD from the Otter River. This withdrawal amount should be subtracted from the 7Q10 in order not to “double count” the discharge flow in the dilution factor. After all, the discharge volume is not “new flow” coming in to the Otter River. All limits using the dilution factor should be re-calculated.

1.1 – 1.2 RESPONSE:

EPA does not agree with the comment from Seaman Paper. The draft NPDES permit for the Erving Center Wastewater Treatment Plant (NPDES Permit No. MA0101052) uses the design flow of the treatment plant to calculate the appropriate dilution factor, not the average flow. According to 40 CFR §122.45(b)(1), “In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow.”

However, for an industrial discharger the permit writer has discretion on how to calculate the dilution factor. Further review of recently issued permits, such as NPDES Permit No. NH0000230 for Monadnock Paper Mills, Inc., reveals that the average monthly flow was

used to calculate the chronic dilution factor and the maximum daily flow was used to calculate the acute dilution factor.

Therefore, the dilution factor has been recalculated, factoring in the intake water withdrawal (per the comment from CRWC) and using the maximum daily flow to calculate the acute dilution factor and the average monthly flow to calculate the chronic dilution factor, as follows:

Seaman Paper maximum plant discharge = 1.4 MGD
7Q10 at USGS Station 01163200 Otter River at Otter River, MA 4.625 cfs; Drainage area = 34.1 mi²
Drainage area at Seaman Paper = 42.1 mi²
7Q10 at Seaman Paper = (43 mi² / 34.1 mi²) (4.625 cfs) = 5.83 cfs
7Q10 adjusted by intake flow = 5.83 cfs – (1.19MGD*1.55cfs/MGD) = 3.99

Acute Dilution Factor = (Adjusted 7Q10 + max plant discharge*CF) / (max plant discharge*CF)
= (3.99 cfs + 1.4 MGD*1.55cfs/MGD) / (1.4 MGD*1.55cfs/MGD)
= 6.16/2.17

Acute Dilution Factor= 2.84 = 2.8

Chronic Dilution Factor = (Adjusted 7Q10 + ave plant discharge*CF) / (ave plant discharge*CF)
= (3.99 cfs + 1.1 MGD*1.55cfs/MGD) / (1.1 MGD*1.55cfs/MGD)
= 5.695/1.705

Chronic Dilution Factor= 3.34 = 3.3

The revised acute dilution factor of 2.8 and the chronic dilution factor of 3.3 have been applied to the final permit and all calculations based on the dilution factor have been recalculated. Based on the revised dilution factors, Part I.A.1, the effluent limitations for aluminum and the effluent limitation for C-NOEC have been changed in the final permit. The aluminum limit in the final permit has been revised to 0.29 mg/L average monthly and 2.1 mg/L maximum daily and the C-NOEC limit has been revised to ≥30%.

Since the Fact Sheet is a final document and cannot be revised, the following statements serve to document the parts of the Fact Sheet affected by the revised dilution factor:

- Based on the low flow conditions (150 lbs/day and 1.1 MGD), and accounting for dilution (3.3), the worst case instream BOD and TSS concentrations are expected to be 4.95 mg/L, (150 lbs/day / 1.1 MGD / 8.34CF / 3.3). This low concentration of BOD under worst case conditions is not expected to significantly increase the oxygen demand, and therefore the discharge is not expected to contribute to the DO impairment of the waterbody.
- The instream concentration of total phosphorus at the highest and best practical treatment (HBPT) concentration of 0.2 mg/L would be 0.056 mg/L (Limit/Dilution Factor = 0.2 mg/L/3.3 = 0.06) mg/L), which is less than the 0.1 mg/L Gold Book number.
- The limits in the previous permit for aluminum are based on the National Recommended Water Quality Criteria. The chronic water quality criteria is 87

µg/L and the acute criteria is 750 µg/L total recoverable aluminum. Based on the revised acute dilution factor of 2.8 and chronic dilution factor of 3.3, the final permit requires the following limits for total recoverable aluminum:

$$\begin{aligned}\text{Chronic limit} &= (\text{chronic criteria}) * (\text{chronic dilution factor}) \\ &= (87 \text{ µg/L}) * (3.3) = 0.29 \text{ mg/L}\end{aligned}$$

$$\begin{aligned}\text{Acute limit} &= (\text{acute criteria}) * (\text{acute dilution factor}) \\ &= (750 \text{ µg/L}) * (2.8) = 2.1 \text{ mg/L}\end{aligned}$$

- Based on the revised chronic dilution factor of 3.3, the C-NOEC in the final permit has been changed to 30% (the reciprocal of the dilution factor).
- Based on available dilution, the CMC (acute) for ammonia applicable to the discharge through Outfall 001 is 25.1 mg/L (8.95*2.8) and the seasonal CCC's (chronic) for ammonia applicable to the discharge are 6.80 mg/L (2.06*3.3) and 3.29 mg/L (0.996*3.3), during the winter (November 1 – April 30) and summer (May 1 – October 31), respectively.
- The National Recommended Water Quality Criteria contains a freshwater CCC for iron of 1000 µg/L (1 mg/L). Accounting for dilution, the applicable CCC for the discharge through Outfall 001 is 3.3 mg/L (1*3.3).

2.0 WHOLE EFFLUENT TOXICITY (WET) TESTING

2.1 SEAMAN COMMENT:

Toxicity – In the Permit on Page 3, the chronic limitation for C-NOEC is 27%. On the table in Page 6, the C-NOEC is listed as 23%.

2.1 RESPONSE:

This comment documents a typographical error in the permit. However, based on the revised chronic dilution factor of 3.3 (see response to comment 1.1 – 1.2), the draft permit requires a C-NOEC of 30% (the reciprocal of the dilution factor). This change has been made to all references to the C-NOEC in the final permit.

2.2 CRWC COMMENT:

We support the addition of several new parameters to be tested, ammonia and iron (weekly), and several at the same time as the quarterly WET testing happens. This facility failed chronic WET tests July 2006 and January 2007, so the additional testing is warranted.

2.3 SEAMAN COMMENT:

Toxicity – This Draft Permit adds toxicity for the fathead minnow. At the beginning of the toxicity program, we originally tested for this organism. Between August 1992 and January 1993, we tested the fathead minnow seven times for toxicity. The results for LC-50 were all >100% and for C-NOEC were 100%. We have never experienced a failure with fathead minnows. Because of the absence of any evidence that our effluent

exhibited any toxicity to the fathead minnow, we made a request to EPA to eliminate this testing from our permit. EPA granted this request and a permit modification was issued on May 18, 1994 to eliminate the requirement to conduct toxicity on the fathead minnow. Since there have been no changes in our manufacturing process or our wastewater treatment that would negatively impact fathead minnow toxicity, we request that this requirement be removed from the draft permit. WET testing of fathead minnows is not supported by any data and would impose a financial hardship on Seaman Paper Company. The *Ceriodaphnia* is more sensitive to our effluent. Also, our past six *Ceriodaphnia* WET tests have all been in compliance. If EPA, after considering this comment, still finds it necessary to require fathead minnow toxicity testing, we suggest that we conduct one test. If this test proves to be compliant, the requirement would be eliminated. If the test fails, we will continue with the regimen outlined in the permit.

2.2 – 2.3 RESPONSE:

EPA believes that additional WET testing is warranted, since the facility has failed chronic WET tests in both July 2006 and January 2007. The requirement to test the daphnid, *Ceriodaphnia dubia*, shall remain in the draft permit since these exceedences have occurred within the past four years. The monitoring frequency of 1/Quarter remains unchanged in the draft permit.

Additionally, as a result of this comment, the requirement to conduct WET testing for the fathead minnow, *Pimephales promelas*, has been removed from the final permit. EPA believes that the WET testing requirements for the daphnid effectively measure the toxicity in the discharge, since this test species appears to be the most sensitive to the discharge toxicity based on past results.

2.4 SEAMAN COMMENT:

In Footnote 7, beginning on page 5 and continuing on page 6 of the Permit, it states that after one year or 4 consecutive passing toxicity tests, we can request a reduction in testing. On page 17 of the Fact Sheet, it requires 8 consecutive sets of WET results to request a reduction. Our current permit and all our previous permits required 4 consecutive passing results and we request EPA revise this number to 4.

2.4 RESPONSE:

The Fact Sheet is a final document and cannot be changed, however, this comment serves as documentation that the Fact Sheet unintentionally stated the need for 8 consecutive WET results for the permittee to request a reduction in testing frequency. The permit correctly states in Part I.A.1, footnote 7, that “after submitting one year and a minimum of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements.”

3.0 TEMPERATURE

3.1 SEAMAN COMMENT:

PRTI – This new permit requirement is confusing without a clear definition of each parameter of the PRTI equation. Based on our understanding EPA requires the calculation of PRTI every time the temperatures are measured. In this case, there is no need to calculate the PRTI using the maximum effluent flow and maximum effluent temperatures. The equation should therefore be modified to replace the MaxFlow001 with Flow₀₀₁ and MaxTemp₀₀₁ with Temp₀₀₁. The definition of each parameter should be as follows:

- Flow₀₀₁ – This is the daily effluent flow that occurred at the day the temperature was measured
- Temp₀₀₁ – This is the effluent temperature
- Temp_{Ambient} – This is the upstream river temperature on the same day the effluent temperature was measured
- Flow_{Ambient} – This is the upstream river flow at the facility on the same day the effluent temperature was measured. Please note that this is the flow just upstream the facility, not the river flow at the gauging station. Seaman paper will use the recorded flow at the gauging and adjust it using the drainage area ratio of 43/34/1, as was done by EPA for the dilution factor calculation. It appears that EPA used the river flow at the gauging station in the calculation instead of the flow upstream of Seaman Paper.

3.1 RESPONSE:

EPA agrees with the permittee, that modification to the parameter definitions consistent with the above comment helps clarify the PRTI calculation requirement. Therefore, EPA has modified Part I.A.1 of the permit, footnote 10, consistent with the above description of the PRTI calculation, as follows:

The permittee shall calculate the PRTI for each temperature measurement using the equation below. The PRTI calculation shall use the measured effluent temperature, concurrent measured effluent flow, concurrent upstream river temperature, and the concurrent upstream river flow at the facility. Concurrent upstream river temperature shall be measured as close in time as possible, but no greater than one (1) hour from the measured effluent temperature. Concurrent upstream river flow and effluent flow shall be taken on the same day as the measured effluent temperature.

$$\text{PRTI } (^{\circ}\text{F}) = \frac{[(\text{Flow}_{\text{Concurrent001}} \text{ MGD}) * (\text{Temp}_{001} ^{\circ}\text{F} - \text{Temp}_{\text{ConcurrentUpstream}} ^{\circ}\text{F})]}{(\text{Flow}_{\text{ConcurrentUpstream}} \text{ cfs}) (0.6464 \text{ MGD/cfs})}$$

3.2 CRWC COMMENT:

The temperature effect estimation given on page 12 to 13 in the Fact Sheet seems off. Why did EPA not use the 7Q10 as the ambient flow (as EPA uses to calculate other limits)? Why did EPA not use the permit max of 90 degrees for the max temperature, which would be worse case scenario allowed under the permit? The ambient water temperature should be the temperature of the river before entering the impoundment (the

impoundment would heat the water up). If one re-calculates the temperature effect using the 7Q10 as the ambient flow (and not the other changes as suggested), the permit allows the temperature to be raised 6 degrees F. We believe EPA should go back to the drawing board on the temperature analysis.

3.2 RESPONSE:

The PRTI calculation in the Fact Sheet is based on DMR data collected from the facility from January 2005 – December 2007, as stated on page 13 of the Fact Sheet. Using the maximum daily effluent temperature, the maximum ambient temperature, the maximum daily effluent flow, and the monthly average ambient flow values taken at the USGS gage (#01163200) (since the ambient flows concurrent with the maximum temperature were not required by the current permit) the maximum PRTI calculated for the time period for which upstream temperature data is available is 3.4°F (See Attachment B to the Fact Sheet– DMR Data Summary, for all the calculated PRTI's). The temperature monitoring was required in the previous permit for this reason, to calculate if there is a reasonable potential for the actual PRTI to exceed water quality standards. The temperature monitoring requirement and PRTI calculation shall be required in the final permit based on this same reasoning, with the requirement to measure the ambient upstream temperature for a more accurate calculation of the PRTI. See also response to comment 3.1, which clarifies the PRTI calculation requirements.

3.3 CRWC COMMENT:

The response to comment document on the last permit issuance indicated that EPA would impose a 5 degree temp change limit in the permit, but it's not here. A limit of 5 degree change should be added to the permit. We note the monitoring frequency for temperature has changed from 2/month to 2/week, and we support more frequent temperature monitoring.

3.3 RESPONSE:

The response to comment document for the last permit issuance indicated that the final permit would “contain a statement that the discharge cannot result in an in-stream change in ambient temperature greater than 5°F to be consistent with the Massachusetts Surface Water Quality Standards [314 CMR 4.05(3)(b)(2)].” According to the Massachusetts Surface Water Quality Standards [314 CMR 4.05(3)(b)(2)], the rise in temperature of the receiving water due to a discharge shall not exceed 5°F, for Class B warm water fisheries. Therefore, the following narrative requirement has been added to the final permit at Part I.A.12: “The rise in temperature of the receiving water due to a discharge shall not exceed 5°F.”

However, EPA has determined that a numeric temperature limit is not necessary at this time since there is no reasonable potential for the discharge from Seaman Paper to exceed this water quality-based limit, as discussed above in response to comment 3.2. However, the final permit requires collection of both effluent and ambient temperature data and flow, in order to calculate the PRTI associated with the discharge. This data shall be used in the next permit issuance to determine if a reasonable potential to violate temperature standards exists.

4.0 AMMONIA

4.1 SEAMAN COMMENT:

Ammonia – The draft permit requires weekly testing of ammonia. On page 18 of the Fact Sheet, it states that based upon the Permit Renewal Application, there is no evidence that the ammonia in our effluent causes water quality problems in the receiving stream. Accordingly, we request that this requirement be eliminated from the permit.

4.1 RESPONSE:

The Fact Sheet states that “based on the available 6 samples of 9.9 mg/L maximum daily and 3.1 mg/L long term average ammonia, there is no evidence to suggest that the discharge violates the calculated CMC of 33.1 mg/L or seasonal CCC’s of 7.6 mg/L and 3.7 mg/L at this time.” However, the Fact Sheet continues to state that “since these 6 samples were taken during a compressed time period (and also during the winter) EPA believes that more information is necessary in order to determine if this discharge may violate the seasonal CCC’s.”

It is common practice for EPA to require additional monitoring in the event that not enough data exists to make a complete determination. Therefore, the permit requires the permittee to sample for ammonia and report the average monthly value, in order to make a reasonable potential determination in the future. The requirements to sample for ammonia shall remain in the final permit, monitored at a frequency of 1/week.

4.2 CRWC COMMENT:

Fact Sheet at page 17 says they assume salmonid species are absent when determining the ammonia limit. However, the Fact Sheet does not indicate whether they asked the Massachusetts Division of Fisheries and Wildlife for data about fish present in that stretch, and whether or not the Otter River supports brook trout.

4.2 RESPONSE:

EPA assumed salmonid species were absent in determining the applicable ammonia CMC for the discharge. To confirm this assumption, EPA checked with Massachusetts Division of Fisheries and Wildlife, as suggested by the commenter. The Massachusetts Division of Fisheries and Wildlife has confirmed that the Otter River is not thought to support salmonid species (Personal communication between J.H. Nagle, EPA and L. Fontaine, MassWildlife, September 22, 2008). However, even if EPA assumes salmonid species are present in the discharge, the calculated CMC is approximately 16.7 mg/L (4.64 mg N/L^1 (Attachment E to the Fact Sheet) * 1.2883 (Conversion Factor) * 2.8 (Acute Dilution Factor)). Therefore, based on the available 6 samples demonstrating a maximum daily ammonia concentration of 9.9 mg/L, there is still no evidence to suggest that the discharge violates the calculated CMC of 16.7 mg/L at this time. Therefore, the final permit remains unchanged and does not contain a requirement for maximum daily ammonia.

5.0 OTHER ISSUES

¹ Ammonia Nitrogen concentration

5.1 CRWC COMMENT:

Monitoring frequencies have been dropped in several places. BOD and TSS has gone from 2/week to 1/week. pH has gone from 1/day to 1/week. DO has gone from 1/week to 2/month. We don't think this is justified, given the multitude of impairments in this waterbody. Until the impairments have been fixed, all NPDES dischargers in this river should be doing plenty of monitoring, and every attempt should be made to eliminate pollutants.

5.1 RESPONSE:

The monitoring data for all of the above mentioned parameters (BOD, TSS, pH, and DO) has consistently been below the limits required in the NPDES permit.

Specifically, the BOD and TSS levels in the discharge have not exceeded the effluent limitations, based on review of the DMR data from January 2005 to December 2007. Therefore, the sampling frequency of 2/week was reduced to 1/week. This reduction in monitoring frequency is not expected to have any effect on the impairments of the receiving water, since the facility is consistently meeting the water quality-based effluent limitations, which are not expected to contribute to the impairments of the receiving water.

Additionally, review of the DMR data reveals that the DO effluent limitations have not been exceeded. Based on these monitoring results, the sampling frequency for DO was reduced from 1/week to 2/month. This reduction in monitoring frequency is not expected to have any effect on the impairments of the receiving water, since the facility is consistently meeting the water quality-based effluent limitation, which is not expected to contribute to the impairment of the receiving water.

Finally, review of the DMR data reveals that the pH effluent limitations in the previous permit have not been exceeded. Based on these monitoring results, the sampling frequency for pH was reduced from 1/day to 1/week. However, the pH limit range has been changed to be consistent with Massachusetts Water Quality Standards (*see* response to comment 5.4). Based on this revised pH limit, EPA does not believe that a reduction in pH monitoring is appropriate since the discharge has not consistently met this revised pH limit range in the past. Therefore, the pH measurements required in Part I.A.1 shall be monitored at a frequency of 1/day to ensure compliance with this revised effluent limitation.

5.2 CRWC COMMENT:

Page 5 of the permit describes what quarterly sampling means, and it is defined as 4 events in a calendar year. Theoretically, following this definition, one could do all four measurements in the same month. Also, twice yearly should not be bunched up within the same month, but could following the definition. This doesn't seem right.

5.2 RESPONSE:

The permit has been revised to clarify the definition of quarterly (1/quarter) and biannual (2/year) sampling. Part I.A.1, footnote 3, of the permit now states:

Sampling frequency of 1/day is defined as the sampling of one (1) discharge event during each 24-hour period, when discharge occurs. Sampling frequency of 1/week is defined as the sampling of one (1) discharge event in each calendar week, when discharge occurs. Sampling frequency of 2/week is defined as the sampling of two (2) discharge events in each calendar week, when discharge occurs. Sampling frequency of 2/month is defined as the sampling of two (2) discharge events in each calendar month, when discharge occurs. Sampling frequency of 1/quarter is defined as the sampling of one (1) discharge event in each calendar quarter, when discharge occurs. Quarterly samples shall be collected during the second weeks in January, April, July, and October. Sampling frequency of 2/year is defined as the sampling of two (2) discharge events in each calendar year, when discharge occurs. One biannual sample shall be collected during the time period from (June 1st – September 30th) and the other shall be collected during the time period from (October 1st – May 31st). The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).

5.3 CRWC COMMENT:

The Fact Sheet on page 7 says that Seaman Paper operates an intake structure above the dam, and takes 1.1 MGD for "paper machines and the boiler." This sounds like a Cooling Water Intake Structure to me, yet there is absolutely no discussion about minimizing impingement and entrainment for fish. There is no mention of grate size. In fact, there is no discussion of what fish might be present in this stretch of river at all. This seems to be a serious oversight in the permit, and should be addressed.

5.3 RESPONSE:

Seaman does not use any intake water for cooling, as noted in Part IV.B of the Fact Sheet. However, to ensure this remains the case, a prohibition of use of intake water for cooling has been added in Part I.A.11 of the final Permit.

5.4 CRWC COMMENT:

The pH limit should be 6.5-8.3, consistent with Massachusetts Water Quality Standards and consistent with Erving #2 NPDES permit, which is 95% discharge from Erving Paper.

5.4 RESPONSE:

The pH limit has been changed to be consistent with Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR"), Inland Water, Class B at 4.05 (3)(b)3. The pH limit range in Part I.A.1 and Part I.A.3 has been revised to 6.5-8.3 SU, accordingly.

5.5 CRWC COMMENT:

There should be DO monitoring guidance in the permit.

5.5 RESPONSE:

The permit does not require any specific DO monitoring guidance since Part II of the Permit, Standard Conditions, already defines the monitoring requirements. Standard Conditions, Part II.C.1, requires that the permittee take representative samples of the discharge and that monitoring results be conducted according to test procedures approved under 40 CFR Part 136.

5.6 CRWC COMMENT:

We would prefer to see the flow trigger of 30 consecutive days modified to be 30 of the last 45-50 days. As it stands now, one thunderstorm on day 28 that briefly bumps the flow rate above 17 cfs could prevent the trigger from being imposed, and this is not necessarily protective of the river.

5.6 RESPONSE:

In the event of a thunderstorm, the condition of the receiving water would not be low flow. Therefore, the trigger for low flow conditions in the permit remains the same, when the total daily flow in the receiving water, as measured at the USGS Gage Station No. 01163200, has been equal to or less than 17 cfs for 30 or more consecutive days.

5.7 CRWC COMMENT:

The Fact Sheet on page 15 gives rationale for the total phosphorus limit, saying that things might change upon completion of a TMDL. At the rate TMDLs are being prepared in Massachusetts, it appears that a TMDL is unlikely within the next 5 years of the permit, or much longer. The permit itself should be made more stringent so that this river can be rehabilitated.

5.7 RESPONSE:

A TMDL study determines the maximum amount of pollutant that a waterbody can receive and still meet WQS, and the allocations of that amount to the pollutant's sources, such as the Seaman Paper's discharge. Although often a lengthy process, EPA believes development of TMDL's is an important step in solving water-quality problems. A TMDL provides (1) analysis and estimates of pollutant loadings from all significant point and non-point sources, (2) a link between pollutants sources and their impacts on water quality, (3) an allocation of allowable pollutant loads among sources, (4) identification of control actions for achieving WQSs, and (5) an opportunity for public participation.

Since a TMDL study for nutrients is not currently available for the Otter River, phosphorus limits must meet either water quality based limits or technology-based limits. EPA has produced guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Water Quality Criteria for Water ("the Gold Book") recommends that instream phosphorus concentrations not exceed 0.1 mg/L for any stream not discharging directly to lakes or impoundments. The "Ecoregional Nutrient Criteria," for Ecoregion XIV, recommends a total phosphorus criterion of 24 ug/L (0.024 mg/L). Finally, a paper by Mitchell, Liebman, Ramseyer, and Card, in

conjunction with the New England States, developed potential New England-wide nutrient criterion for instream total phosphorus concentrations of 0.020 – 0.222 mg/L for New England streams.

EPA typically applies the Gold Book criterion (0.1 mg/L) rather than the more stringent eco-region and New England-wide criterion, given that it was developed from an effects-based approach, versus the eco-region and New England-wide criterion that were developed on the basis of reference conditions. The effects-based approach is taken because it is often more directly associated with an impairment to a designated use (i.e. fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (i.e., water quality impairments) are likely to occur. It applies empirical observations of a causal variable (i.e., phosphorus) and a response variable (i.e., chlorophyll a) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same eco-region class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

The phosphorus effluent limitation in the permit is based on the Highest and Best Practical Treatment, which MassDEP has defined as a monthly average limit of 0.2 mg/L total phosphorus. Using the calculated chronic dilution factor of 3.3, a discharge of 0.2 mg/L phosphorus would result in an instream concentration increase of only 0.06 mg/L ($0.2 \text{ mg/L} / 3.3$). This increase is below the Gold Book criterion (0.1 mg/L) which is expected to prevent adverse effects (i.e., water quality impairments), as discussed above. Therefore, the average monthly limit of 0.2 mg/L has been retained in the draft permit based on BPJ and anti-backsliding requirements found in 40 CFR §122.44(l). This limit is expected to significantly reduce phosphorus in the receiving water and ensure that phosphorus discharge concentrations in the receiving water will not significantly exceed the Gold Book Guidance.

6.0 CLARIFICATIONS

6.1 CLARIFICATION

Part I.A.1, footnote 9, and the monitoring requirements in the Table in Part I.A.1 have been revised to be consistent. In the table, the requirement to report “Ammonia” has been changed to “Total Ammonia Nitrogen (as N),” to be consistent with footnote 9. In footnote 9, “Total Recoverable Aluminum” has been replaced with “Aluminum” and the footnote has been revised to specify that all metals shall be reported as total recoverable concentrations.

6.2 CLARIFICATION

Part I.A.1, footnote 4, and Part I.A.2, footnote 7, the phrase “combined proportionally to flow” has been added for clarification of the definition of composite samples.

6.3 CLARIFICATION

The typographical error of “my” has been replaced with “by” in Part I.A.1, footnote 1.